

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

a capacitor comprising a lower electrode provided above a substrate, a capacitor insulating film

5 selectively provided on the lower electrode, and an upper electrode selectively provided above the lower electrode so that the capacitor insulating film can be interposed between the upper and lower electrodes;

an electrode protection film formed of oxide
10 conductors containing at least one of metal elements such as Sr, Ti, Ru, Ir and Pt, and provided to cover the upper surface of the upper electrode;

an interlayer insulating film provided above the substrate to cover the capacitor and the electrode
15 protection film;

an upper layer interconnect wire for the lower electrode provided on the interlayer insulating film, and electrically connected to the lower electrode via a lower electrode plug provided in the interlayer
20 insulating film; and

an upper layer interconnect wire for the upper electrode provided on the interlayer insulating film, and electrically connected to the upper electrode via an upper electrode plug provided in the interlayer
25 insulating film and the electrode protection film.

2. The device according to claim 1, wherein the electrode protection film is formed of a material

having an processing rate of 25% or less with respect to the interlayer insulating film.

3. The device according to claim 1, wherein the electrode protection film is an etching stopper film,
5 which is formed of a material having an etching rate lower than the interlayer insulating film.

4. The device according to claim 1, wherein the upper electrode is formed of a material containing at least one of metal elements belonging to II-A, IV-A and
10 VIII groups.

5. The device according to claim 3, wherein the interlayer insulating film is a single film comprising only SiO_2 or stacked film containing SiO_2 , and

the electrode protection film is an etching
15 stopper film, which is formed of a material having an etching rate of 25% or less with respect to the SiO_2 film.

6. The device according to claim 4, wherein the upper electrode is formed of oxide conductors
20 containing at least one of metal elements belonging to II-A, IV-A and VIII groups.

7. The device according to claim 4, wherein the upper electrode is formed of a material containing at least one of metal elements such as Sr, Ti, Ru, Ir and
25 Pt.

8. The device according to claim 5, wherein the electrode protection film is formed of any oxide

conductors of IrO_2 , RuO_2 and SrRuO_3 .

9. The device according to claim 8, wherein the upper electrode is formed of a material containing at least one of materials forming the electrode protection film.

10. A method of manufacturing a semiconductor device, comprising:

selectively providing a capacitor insulating film on a capacitor lower electrode provided above a substrate, and providing a capacitor upper electrode so that the capacitor insulating film can be interposed between the upper and lower electrodes;

providing an electrode protection film formed of oxide conductors containing at least one of metal elements such as Sr, Ti, Ru, Ir and Pt, to cover the upper electrode;

providing an interlayer insulating film to cover the capacitor and the electrode protection film; and

selectively etching the interlayer insulating film so that a first recess for providing a lower electrode plug and a second recess for providing an upper electrode plug can be formed.

11. The method according to claim 10, wherein the electrode protection film is formed of a material having an etching rate lower than the interlayer insulating film, and

the first and second recesses are concurrently

formed according to RIE.

12. The method according to claim 11, wherein the interlayer insulating film is a single film comprising only SiO_2 or stacked film containing SiO_2 , and

5 the electrode protection film is an etching stopper film, which is formed of a material having an etching rate of 25% or less with respect to the SiO_2 film.

10 13. The method according to claim 12, wherein the electrode protection film is formed as oxide conductor according to sputtering in oxygen atmosphere.

14. The method according to claim 12, wherein the electrode protection film is formed as oxide conductor according to CVD in oxygen atmosphere.